## (12)

## **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3: **24.04.2002 Bulletin 2002/17** 

(51) Int Cl.<sup>7</sup>: **G06F 17/30** 

(43) Date of publication A2: **20.05.1998 Bulletin 1998/21** 

(21) Application number: 97120021.7

(22) Date of filing: 14.11.1997

(84) Designated Contracting States:

AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

**Designated Extension States:** 

AL LT LV MK RO SI

(30) Priority: 19.11.1996 US 752218

(71) Applicant: MICROSOFT CORPORATION Redmond, Washington 98052-6399 (US)

(72) Inventors:

Bennett, John G.
 Bellevue, Washington 98004 (US)

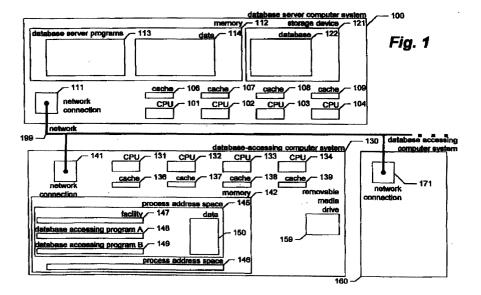
Dalal, Ketan
 Seattle, Washington 98102 (US)

(74) Representative: Grünecker, Kinkeldey, Stockmair & Schwanhäusser Anwaltssozietät Maximilianstrasse 58 80538 München (DE)

# (54) Processing multiple database transactions in the same process to reduce process overhead and redundant retrieval from database servers

(57) The present invention uses a segmented caching data structure to cache database objects provided by a database server. The database server provides database objects in response to requests by a number of different programs. The segmented caching data structure is made up of a single central cache and a number of program caches, each corresponding to one of the programs. When a database object is provided by the database server in response to a request by any of the

programs, a copy of the database object is stored in the central cache. Another copy of the object is stored in the program cache for the program that requested the database object. When the segmented caching data structure is maintained in this manner, when a request is made by one of the programs a copy of the requested object stored in either of the central cache or the program cache for the program may be used, making it unnecessary for the database server to provide the requested database object.





## **EUROPEAN SEARCH REPORT**

Application Number EP 97 12 0021

Category	Citation of document with i	Relevant	CLASSIFICATION OF THE	
Calegory	of relevant pass	ages	to claim	APPLICATION (Int.Cl.6)
X	applications" 1994 ACM SIGMOD INT	ges 383-394,	1,2,5-13	G06F17/30
Y	* abstract * * figures 2,7,8 * * page 385, section * page 389, section * page 390, section * page 391, section	3.1 * 3.2 *	3,4	
Y	BUFFERMANAGEMENT" IEEE TRANSACTIONS OF IEEE INC. NEW YORK, vol. 22, no. 11, 1 November 1996 (19	LICATION TO DATABASE  N SOFTWARE ENGINEERING, US,  96-11-01), pages	3,4	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
	827-838, XP00064057 ISSN: 0098-5589	5		
A	* section 1 (introd	uction) *	1,2,5, 8-13	
A	US 5 416 917 A (ADA 16 May 1995 (1995-0 * abstract *		1-13	
		va. /		
TO A COLUMN TO A C		,		
L	The present search report has t	peen drawn up for all claims	1	
	Place of search	Date of completion of the search	<del></del>	Examiner
MUNICH		14 February 2002	Wier	nold, N
X : parti Y : parti docu A : tech: O : non-	ATEGORY OF CITED DOCUMENTS cularly relevant if taken alone cularly relevant if combined with another ment of the same category nological background -written disclosure mediate document	T : theory or princip E : earlier patent do after the filing da	le underlying the in cument, but publis the in the application or other reasons	nvention thed on, or

EPO FORM 1503 03.82 (P04C01)



## **EUROPEAN SEARCH REPORT**

Application Number EP 97 12 0021

ategory	Citation of document with ir of relevant pass	dication, where appropriate,	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Ci.6)
A	of relevant pass  GE YU ET AL: "Tran a distributed objec WAKASHI-design, imp performance" DATA ENGINEERING, 1 TWELFTH INTERNATION ORLEANS, LA, USA 26	saction management for t storage system lementation and 996. PROCEEDINGS OF THE AL CONFERENCE ON NEW FEB1 MARCH 1996, LOS EEE COMPUT. SOC, US, 1996-02-26), pages	to claim 1–13	
	The present search report has	peen drawn up for all claims		
	Place of search	Date of completion of the search	<u> </u>	Examiner
	MUNICH	14 February 2002	Wie	nold, N
X : part Y : part doc A : tech O : non	ATEGORY OF CITED DOCUMENTS icularly relevant if taken alone licularly relevant if combined with anotument of the same category mological background —written disclosure rmediate document	T : theory or principle E : earlier patent do after the filling dat her D : document cited is L : document cited for	e underlying the cument, but publice in the application or other reasons	invention shed on, or

EPO FORM 1503 03.82 (P04C01)

## ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 97 12 0021

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

14-02-2002

Patent docume cited in search re	ent eport	Publication date		Patent family member(s)	Publication date
US 5416917	A	16-05-1995	US BR CA DE DE EP ES JP JP KR	5566332 A 9101161 A 2034905 A1 69131543 D1 69131543 T2 0449494 A2 2135387 T3 2680201 B2 4223538 A 9616882 B1	15-10-1996 05-11-1991 28-09-1991 30-09-1999 30-03-2000 02-10-1991 01-11-1999 19-11-1997 13-08-1992 26-12-1996
	and district related makes handle blacks stated, also		JP	4223538 A	13-08-1992

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

FORM P0459